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FAA Aviation NEWS

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David Gelfan, *Editor-in-Chief*
Louise Oertly, Associate Editor

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BRIEFS

FOR LACK OF A SWITCH... Delayed access to the appropriate circuit breaker almost resulted in an inflight fire in an executive jet flying at 29,000 feet over the Pacific in pitch darkness. An overheating coffeemaker failed to respond to the cutoff switch and smoke began pouring out of the adjacent woodwork, where the unit was plugged in. The circuit breaker was difficult to identify and access, as it was one of many in a panel situated a few inches behind the co-pilot's seatback. At the cost of several burned fingers and considerable smoke inhalation the PIC finally managed to unplug the electrical cord before the situation got out of hand. The coffeemaker had malfunctioned repeatedly, but the problem had not been brought to anyone's attention.

It has now.

LOCAL WEATHER. The FAA has awarded a contract for Automated Weather Observing Systems (AWOS) to be produced, installed and maintained at 160 airports across the country. AWOS will provide critical aviation weather data (including: wind, temperature, dew point, altimeter setting, visibility and ceiling) to these airports,which do not have an FAA operated control tower or official weather observation capability. Minute-by-minute weather updates will be broadcast over ground-to-air radio by a computer-generated voice operating 24 hours a day, seven days a week. Installation of the system should be complete in 1991.

ODOR OF THE DAY. Beware of potent odors in the cockpit following maintenance. In one case non-flammable penetrating oil was sprayed on the control cable pulleys under the cockpit floor of a Swearingen SA226. The cabin had been ventilated for about an hour and the flight crew took off after being assured the odor would dissipate. As the odor got stronger, the crew called ATC to make a precautionary landing. Before they landed safely 20 minutes later, they started to complain of light-headedness, body tremors, and reduced ability to concentrate. Oxygen only made the symptoms worse. Never take chances with the potential harmful effects of various spray products in an enclosed area.

U·M·I

DUE TO PATTERNS COVERING PRINT, MANY PAGES DID NOT REPRODUCE WELL. THIS REPRODUCTION IS MADE FROM THE BEST COPY AVAILABLE.

VFR AND WINTE NIGHT

Night flying tends to become more frequent during the winter months, when the daylight hours are fewer. There is no evidence to prove that the night environment is less safe than daytime, but there are some strong indications that many low-time, non-instrument rated pilots are being victimized at night by weather conditions beyond their competence.

The predominant factor in most of these accidents is *worsening visibility*. In many cases the weather was actually above VFR minimums at the destination airport, but the pilot encountered en route patches that were marginally VFR or worse. Consequently the pilots were unable to maintain positive reference to the ground. It is often possible to maintain VFR in the daytime despite the presence of fairly low ceilings, precipitation, haze or smoke, but night VFR is another matter. These phenomena tend to soak up available light, and to screen out terrestrial as well as celestial illumination, often to the extent that continued positive visual reference to the ground is impossible. Unwary pilots stray off course, miscalculate their position and collide with the ground. The death toll of these VFR at night accidents is frightening.

A grim example of this type of accident occurred in November in the Shenandoah Valley of western Virginia. The 60 year old pilot, who had accumulated about 2,000 hours, was not instrument rated and had no limitations other than wearing glasses for night vision. He was flying a Beech *Bonanza* out of Shenandoah Valley Airport, which is centrally located in the valley at an elevation of 1,201 feet. To the east the Blue Ridge Mountains rise to nearly 4,000′ and the slightly higher Massanuttens lie to the west. A characteristic bluish haze frequently obscures the ridges and sometimes extends over the valley.

The round trip flight to Charlotte, NC, had originated that morning in clear weather. The current area forecast called for ceilings of about 2,000′ with visibility five miles in haze. Ceilings were expected to be marginally VFR after 7:00 p.m.

An hour after taking off, the *Bonanza* pilot, who had not filed a flight plan, contacted Roanoke Approach Control and requested weather information for Shenandoah Valley Airport. (The airport is about 50 miles north of Roanoke.) The controller explained that he could only give weather for the Roanoke area, where VFR flight above 4,000′ or 4,500′ appeared doubtful. The *Bonanza* pilot was advised that Roanoke FSS might have some more specific information about weather in the valley or around Shenandoah Valley Airport (there was no weather station at the airport at the time).

However, the *Bonanza* was unable to contact Roanoke FSS, and about five minutes later reported back to Roanoke Approach Control and requested radar surveillance. Radar contact was established at seven miles northeast of the Henby intersection, altitude 5,500′. The pilot was requested to advise Approach Control if he changed altitude. After confirming the frequency for the flight service station he made several more attempts to contact Roanoke FSS, without success.

Shortly before 6:00 p.m. the *Bonanza* pilot was informed that radar advisories from Roanoke could no longer be provided, and advised to contact Washington en route traffic control center. The pilot acknowledged. No further transmissions were received from the *Bonanza* by Air Traffic Control.

At 6:20 p.m. Roanoke Approach Control made several unsuccessful attempts to contact the aircraft, which had disappeared from the radar scope. There was no reply.

By this time it was pitch dark in the valley. The *Bonanza* had continued northbound, but apparently the pilot was unable to see the light of his destination airport under the layer of haze and strayed off course. The aircraft was located six days later, 200 feet below the ridge-line of the Massanutten Mountains, at an elevation of 4,100′. All three occupants had perished on impact. A flight which might have experienced little trouble during daylight hours turned into a tragedy after dark.

Fog

The most frequently mentioned obstruction to vision at the site of night flying accidents is fog. The pilot who is flying VFR at night under a relatively low ceiling must depend upon visual references to maintain a safe altitude above the ground. At night fog has a way of insidiously masking the outlines of hilltops, towers, wires, etc. Fog also has a nasty habit of materializing unexpectedly after dark whenever the terrain cools off efficiently and there is moisture in the air. The pilot who elects to fly VFR at night, under a marginally low ceiling, by hugging the contour of the earth is a likely victim of this phenomenon.

A 19 year-old pilot in a Cessna 152 landed at Franklin-Wilkins Airport, in Lexington, KY, shortly after 5:00 p.m. He was completing a cross-country round trip flight. Cahokia, IL to Little Rock, AR. and return, in preparation for his commercial certificate. The forecast for the next segment of his flight, to Nashville, indicated below VFR minimums, and the pilot was not instrument-rated. The forecast for Nashville at his ETA was: Ceiling 500 feet overcast, visibility two miles, rain showers, fog.

The manager of the airport at Lexington, which is attended during daylight hours only, offered to drive the pilot into town so that he could find lodging for the night. However, the pilot decided he would get some sleep in the airplane and be ready to take off as soon as the weather broke. The manager locked up his office at 7:00 p.m. and left.

Using the Cessna's radio, the pilot contacted the flight service station at Jackson, TN several times during the evening requesting Nashville weather. Instrument flying conditions persisted. At 12:15 a.m. the pilot called the Memphis FSS by telephone and was given the updated Nashville weather report and forecast. Nashville was now marginally VFR (500 feet scattered, 2,000 feet overcast, five miles visibility). The forecast called for continued improvement up to 4:00 a.m., then worsening from ground fog. The pilot indicated he would "just as soon go now as anything" and took off.

However, the Nashville forecast was amended at 1:22 a.m., calling for a variable ceiling 200 to 300 feet obscuration, visibility one-half to two miles, fog. An official observation at Nashville thirty minutes later reported: Ceiling measured 300 feet broken, 2,000 feet broken, visibility two miles, fog, temp 62° F. There is no indication the pilot was aware of the amended forecast.

The flightpath from Lexington took the pilot over a sparsely settled wildlife refuge area along the Tennessee River, a damp and humid area. The adjoining terrain is hilly and wooded. The aircraft was not heard from again. A week long search of the area between Lexington and Nashville turned up nothing.

Six weeks later a party of hunters came across the aircraft wreckage and the deceased pilot at a site estimated as 20 miles northeast of Lexington. The 152 had crashed in a flat attitude on a heading of 290, suggesting that the pilot may have encountered fog between Lexington and Nashville, attempted to turn back and struck a hillside in the dark. He had logged a total of 134 hours, 4.4 at night.

Ice

Icing is another worrisome hazard to pilots who attempt VFR night flight when weather reports show significant moisture in the environment. Especially in winter, an aircraft that descends rapidly from altitude to a warmer moist level may receive an immediate coating of ice, which could impair aircraft performance at a critical phase of flight. The pilot may be unable to see the ice buildup in the day, and fail to compensate for it. In some cases following such a descent, the aircraft windshield has iced over abruptly, producing an "instant IFR" condition for a very startled pilot.

A case in point involved a physician who was flying a Grumman American *Tiger* over the Teton Wilderness Area of western Wyoming. The 55-year old doctor had practiced in Cody, WY, but was now living semi-retired in Jackson Hole. He had developed an interest in flying and frequently flew over to visit his married daughter who lived in Cody; this was to be his annual Christmas visit.

He had planned to take off in the *Tiger*, which he owned, on the morning of December 23, but he was called to the hospital in Jackson to attend the victim of a skiing accident, and did not get back to the airport until after noon. By this time Cody was reporting: Ceiling indefinite 2,000 feet obscured, light snow showers in the area, visibility one and one-half miles. The doctor sat patiently in the pilot's lounge and read a magazine until the next report came out at 3:15 p.m. The weather at Cody had improved slightly, although it was still no better than marginally VFR.

The doctor was not instrument rated and had logged less than 200 hours, but he knew the route well. His chief concern was the weather over the higher portions of his route. His normal flight path took him over the 10,000 foot mountains that rimmed Jackson Hole to the east and on to the Dunoir VOR. Then he would track outbound from Dunoir on the 060 radial until he picked up the South Fork of the Shoshone River and followed it into Cody, descending with the terrain and following the river to avoid the sheer slopes that rose over 12,000′ on either side. There is no weather station in the area.

He telephoned the flight service station at Worland, on the eastern side of the mountains and asked for en route reports and a forecast. The forecast indicated deteriorating weather conditions overnight over the entire route, with sleet or snow showers by

morning. Two recent pilot reports indicated VFR weather over Dunoir, with fair to good visibility as far as Cody. However, VFR flight was not recommended because of the forecast.

The doctor commented that a snowstorm in the mountains at this time of year could last for days. He could see no harm in going as far as the Dunoir VOR to take a look. If the valley leading to Cody looked bad, he could always return to Jackson Hole. If he left at once he could complete the 100 mile flight before the light faded. At 3:33 p.m. he filed his flight plan and took off immediately. The air was fairly smooth and visibility was good as far as Dunoir. At 4:27 p.m. he reported over the VOR a 12,500 feet and stated he had begun a descend on the 060 radial. The Shoshone Valley appeared dusky in the distance, but he was experiencing no difficulty in maintaining VFR and he knew Cody was less than an hour away. The mountain peaks were heavy with snow and the *Tiger*'s outside air thermometer read minus 40°F. He turned the cabin heat up full. He noticed it did not seem to be putting out its normal warmth.

At 4:37 p.m. he radioed that he was at 8,000 feet and descending with the terrain, flying approximately 1,000 feet above ground, which was covered with snow. He reported some "light intermittent snow showers," and said he had a solid overcast at about 5,000 feet, but the valley ahead looked like it had better visibility.

The transmission was broken off abruptly at 4:42 p.m., and resumed at 4:45 p.m. At this point the pilot stated that his windshield had become completely coated with ice, and the wings appeared to be iced up. He said he had lost control and started to spin and had recovered after some loss of altitude. He could only see out of his side canopy. He was uncertain of his position relative to the terrain. He was attempting to maintain his altitude with a shallow turn, but was concerned about his proximity to the slope. At one point he thought he saw green and red lights on the ground.

The aircraft's transmissions now became progressibly weaker. The FSS attempted to get a bearing on the aircraft with Direction Finding Equipment but were unable to do so. The last transmission was recorded at 4:58 p.m.

A statement from a witness on the ground, who was a pilot and owner for the airstrip and cattle feeding station at Skytop, indicated that he had heard an aircraft overhead at approximately 4:30 p.m. He had not paid any attention to it until he heard a sudden power surge and then saw the airplane begin to fly in a circle, when he realized the pilot was in trouble. He then pushed his own aircraft, a Cessna 180, out of the shed and turned on the navigation lights and rotating beacon, so the pilot would know someone was there. It was beginning to get dark, and snow was coming down. He stated:

I sent my boy with the tractor down to the airstrip, which is on a piece of benchland on the side of the mountain, and I told him to stand there with his CB on, and point the headlights straight down the runway. Then I turned the UNICOM radio on and kept transmitting until I picked up an answer, something like "... anyone down there?"

I told him this was Skytop, and who we were and that we had a landing strip he could use if he needed it, 2,600 feet lying 07–25, and not too much snow on it. He told me he was iced up pretty bad and couldn't see anything out of his windshield. He had the heater full on but it wasn't helping. He was flying in a circle, just barely holding altitude and he had seen my 180's nav light once or twice out of his side window. He thought he was seeing things at first.

While he was talking I took my mike through the window and went outside and I could see him pretty close to the side of the mountain. I told him I could steer him toward the runway and all he'd have to do was watch his altitude and airspeed, and he said "Fine."

I told him to look for the tractor when he came in close and keep a couple of wing lengths to the right, and he rogered that too.

Then I began to turn him so he could line up with the runway, but it was hard because he was maybe half a mile away, with some snow coming down and the light fading, and the threshold was about 200 yards from where I was standing, and I couldn't move any closer because of the microphone. I could see how high he was pretty well, but I couldn't tell where he was.

But I could talk to my boy on the CB, and between the two of us we got him lined up for 07, which is really the only way to land because it is uphill on the open bench against the slope, and the mountain will stop you if you overshoot. But if you come in short you're in bad shape.

The pilot was worried because he couldn't see the tractor after we lined him up, but I kept telling him that was okay, the boy could see him, and he was talking to me. I told him to watch his instruments, keep the wings level and airspeed a little better than normal glide because of the ice, and just keep coming, not to pull off the power till he saw the boy, and not to pull up, because there wasn't light enough for a go around even if he could make it with all that ice.

Then I saw him coming up on the tractor, with the boy waving like crazy and yelling at me Okay, Okay, he's got it. I told him to chop the power which he did and the airplane settled down and bounced a few times, but rolled out okay up against the slope.

My boy went over and got him in the tractor and brought him in. The pilot said it was zero-zero all the way; he'd been too busy holding steady to even try to look out the side at the end. He said he was a doctor, and he thought my boy's ears had got frost-bitten because he'd been waving his cap all the time, and he gave him some salve in case they hurt later. He looked pretty played out himself. He said he'd been ready to give up the ghost until he saw the nav lights on the old 180 of mine, and that was the prettiest Christmas ornament he ever hoped to see. He said we did a great job bringing him down, in fact he said it seemed like a real miracle.

Next morning we took him down to the valley where he could phone his family in Cody, and they drove up and got him.

Clouds anywhere on the horizon are a bad omen at any time of year for the VFR pilot who is contemplating a night flight. Any unexpected or freakish change of weather can "pull the plug" on your source of visual reference. And miracle rescues are rare, even at Christmas.

Data for the accidents described in this article was drawn from reports of the National Transportation Safety Board. Certain details of the latter accident have been altered for the sake of anonymity. ■

SPEAKING UP

The Importance of Clear Communications Between Pilots and Air Traffic Controllers

Since the beginning of manned flight, almost a century ago, the importance of dependable communications between ground stations and airmen has been recognized. From very simple beginnings, such as hand signals, bonfires, parachuted notes, etc., we have seen an increasingly sophisticated form of electronic communications develop. To partake fully in the current radio navigation/communication network, equipment with as many as 720 channels is being used.

At major airports the heavy increase in air traffic now requires that controllers be responsible for as many as 20 aircraft in a given sector. In order to maintain a smooth flow of traffic at peak periods and minimize delays, controllers have learned to compress their radio transmissions and to reduce or eliminate pauses. These so-called nonstop transmissions are usually not a problem for professional crews, but for others—especially those attempting single pilot IFR operations in poor weather—keeping up with the radio work and the flying tasks has led to communications errors.

In fact, NASA's Aviation Safety Reporting Program, which monitors reports of air safety infringement incidents, indicates that approximately three out of every four reports involves some form of flawed pilot/controller communications. Given the preponderance of numerical data in these communications—which includes frequency changes, headings, altitudes, airspeed, weather information, aircraft identification numbers, etc.—there are obvious opportunities for error when any individual is operating under stress. And in a night operation or IFR weather environment, an error of only a few digits can prove fatal.

For example, recently an inaccurate altimeter setting led to a fatal crash at Rogers Municipal Airport in northwestern Arkansas, according to the investigation by the National Transportation Safety Board.

The subsequent board report indicates that the pilot, alone in the cockpit with one passenger on board, initiated an instrument approach shortly after 7:00 p.m. on a dark December evening. The VOR/DME approach course was over an unlighted, rural area, in weather conditions reported as ceiling 800 feet, visibility 2,000 feet.

A transcript of communications between approach control and the pilot discloses that an altimeter setting of 29.85 was given, but was not read back. The postcrash review determined that the altimeter was set at 30.14, which would have given a false "cushion" of 290 feet to the actual altitude of the aircraft. The *Aero Commander* impacted trees approximately 25 feet above ground at a point three miles out from the runway. The pilot was seriously hurt; the passenger succumbed to fatal injuries.

How can communications errors of this kind be eliminated—or at least reduced? A key consideration here appears to be *poor radio techniques*; many pilots are unaware—until they hear a playback—of how casual, uncertain or undisciplined they are when talking on the radio. FAA and the aviation industry have jointly undertaken a nationwide campaign to educate airmen and controllers on how to better manage communications while flying an airplane. Some of the basic areas in which pilot improvement can significantly improve safety follow.

Think of aviation radio as similar to a "party-line" telephone system, with ATC activity as the central operator. Never make a call without first listening in to find out whether the "line" is in use. Otherwise by just clicking your microphone button you may block out or distort an important bit of information. This could require repeating a lengthy transmission—or possibly it could result in some pilot's erroneous understanding of a controller's message.

By simply listening on an assigned frequency you may be able to pick up much of the information you are seeking—i.e., weather conditions, runway in use, direction of traffic flow, etc. Similar information is available from the Automated Terminal Information Service (ATIS) tapes, available wherever you see "ATIS" and the appropriate frequency on a sectional chart, beneath the airport line.

When a radio transmission you have been monitoring comes to an end, resist the impulse to jump in immediately with your call. The controller may be about to address another pilot with urgent information. Learn to distinguish between your own sense of urgency and an *actual* emergency—in the latter case, go directly to 121.5. For the "party-line" system to work, pilots must develop a sense of timing and courtesy. Over-anxiousness sometimes leads to clenching your hand on the "talk" button, which blanks out the frequency for everyone.

Something else to remember about "partyline" communications system is that each communication should begin with the identity of the party being addressed and the caller's ID.

For the sake of clarity, address each facility by its full name:

- "OKLAHOMA CITY APPROACH CONTROL, AERO COMMANDER FOUR, SEVEN FIVE ONE ROMEO"
- "ST. LOUIS DEPARTURE CONTROL. AZTEC SIX TWO FOUR FOUR LIMA."
- "WASHINGTON CENTER, BARON FIVE THREE EIGHT TWO ALFA."

Knowing the name of the appropriate facility for assisting you at any point in your flight is a pilot's responsibility—and it will help speed up radio contact. Once contact is established, give your request, your position and altitude. To avoid repetition of ATIS information already received, use a phrase like "Have numbers" or "Information Charlie received."

Use discretion and do not overload the controller with information he does not need.

EXAMPLE:

"ATLANTA CENTER, DUKE FOUR ONE THREE THREE ROMEO, REQUEST VFR TRAFFIC ADVISORIES, TWENTY NORTHWEST ROME, SEVEN THOUSAND FIVE HUNDRED, OVER."

Initial Contact When Transmitting and Receiving Frequencies are Different

If you are attempting to establish contact with a ground station and you are receiving on a different frequency, include the name of the VOR or the frequency on which you expect a reply. Most FSS's and control facilities can transmit on several VOR stations in the area. Use the appropriate FSS call sign as indicated on charts.

EXAMPLE:

New York FSS is shown to transmit on the Kennedy, Hampton and Calverton VORTACs. If you are in the Calverton area, your callup should be "NEW YORK RADIO, CESSNA THREE ONE SIX ZERO FOXTROT. RECEIVING CALVERTON VOR, OVER."

When unable to establish contact and you wish to call any ground station, use the phrase "ANY RADIO (tower, station), GIVE CESSNA THREE ONE SIX ZERO FOXTROT A CALL ON (Frequency, VOR)." If an emergency exists or you need assistance, so state.

Subsequent Contacts

Use the same format as given for initial contact but state your message or request with the callup in one transmission. The ground station name and the word "Over" may be omitted if the message requires an obvious reply and there is no possibility for misunderstandings. You should acknowledge all callups or clearances unless the controller or FSS specialist advises otherwise. Acknowledge with your aircraft identification and "Roger," "Affirmative," "Negative" or other appropriate remarks. If you have been receiving VFR traffic advisories and you are leaving the area or changing frequencies, advise the ATC facility and terminate contact.

If the message you receive is lengthy, or partially interrupted or, for any other reason verification is necessary in your judgment, you should read the entire transmission back. Certain items such as altitude, airspeed, rectors, etc. should always be read back for verification.

EXAMPLE:

"BEECH SEVEN FIVE SEVEN SIERRA, UNDERSTAND WE ARE CLEARED TO DESCEND TO SIX THOUSAND FEET. (etc.)

There are some occasions when the controllers must issue time-critical instructions to other aircraft and they may be in a position to observe your response, either visually or on radar. In these circumstances they may not pause or give you opportunity to respond before contacting another aircraft. If you wish to read back, you should take whatever action you believe necessary and remain on the frequency until there is an opportunity to transmit.

Acknowledging Frequency Changes

When advised by ATC to change frequencies, acknowledge the instructions at once. If you select the new frequency without an acknowledgment, the controller's workload is increased because he or she has no way of knowing whether you received the instruction or have had radio communications failure.

At times, a controller/specialist may be working a sector with multiple frequency assignments. In order to eliminate unnecessary verbiage and in order to handle higher priority transmissions, the controller/specialist may request the pilot, "(Identification), CHANGE TO MY FREQUENCY 123.4" This phrase should alert the pilot that he is only changing frequencies, not controller/specialist, and that initial call-up phraseology may be abbreviated.

EXAMPLE:

LEARJET SIX NINER FOUR ROMEO, NOW ON 122.4."

Abbreviating Call Signs

Call signs should never be abbreviated on an initial contact or at any time when other aircraft call signs have a similar sound (e.g., "CESSNA SIX ONE TWO TWO FOXTROT" and "CESSNA ONE SIX TWO TWO FOXTROT," not "CESSNA TWO TWO FOXTROT," which could be either aircraft.

ATC specialists may initiate abbreviated call signs of other aircraft by using the prefix and the last three digits/letters of the aircraft identification after communications are established. The pilot may use the same abbreviated call sign in subsequent contacts with the ATC specialists. When aware of similar or identical-sounding call signs, ATC specialists will take action to minimize errors by emphasizing certain numbers or letters, by repeating the entire sign, or repeating the prefix. Pilots should use the phrase "VERIFY CLEARANCE FOR (your complete call sign)" if doubt exists concerning proper identity.

Civil aircraft pilots should state the aircraft type, model or manufacturer's name followed by the digits/letters of the registration number. When the aircraft manufacturer's name or model is stated, the prefix "N" is dropped ("Aztec Two Four Six Four Alpha").

Air taxi or other commercial operators not having FAA authorized call signs should prefix their normal identification with the phonetic word "Tango".

EXAMPLE:

"TANGO AZTEC TWO FOUR SIX FOUR ALPHA."

Air carriers and commuter air carriers having FAA authorized call signs should identify themselves by giving their complete call sign using group form for the numbers plus an appropriately descriptive word.

EXAMPLE:

"UNITED TWENTY-FIVE HEAVY."

EXAMPLE:

"MIDWEST COMMUTER SEVEN ELEVEN."

Compliance with Frequency Changes

When instructed by ATC to change frequencies, select the new frequency as soon as possible unless instructed to make the change at a specific time, fix, or altitude. In the latter case, monitor the frequency you are on until reaching the specified time or place, unless instructed otherwise by ATC.

Student Pilot Radio Communication

FAA will assist the student pilot in acquiring practical experience in the environment in which he will be required to operate. You need only identify yourself as a student pilot during your initial call to an FAA facility.

EXAMPLE:

"DAYTON TOWER, THIS IS FLEETWING ONE TWO THREE FOUR, STUDENT PILOT."

Figures indicating hundreds and thousands of feet in round numbers, as for ceiling heights, and upper wind levels up to 9,900 shall be spoken as follows:

EXAMPLE:

500 .....FIVE HUNDRED

EXAMPLE:

4,500.....FOUR THOUSAND FIVE HUNDRED

Numbers above 9,900 shall be spoken by separating the digits preceding the word "thousand."

EXAMPLE:

10,000 ..... ONE ZERO THOUSAND

EXAMPLE:

13,500 ..... ONE THREE THOUSAND FIVE HUNDRED

Other Numbers

All other numbers should be transmitted by pronouncing each digit.

EXAMPLE:

10 ..... ONE ZERO

When a radio frequency contains a decimal point, identify it as such.

EXAMPLE:

122.1 .... ONE TWO TWO POINT ONE

Up to but not including 18,000 feet MSL, state the separate digits of the thousands, plus the hundreds, if appropriate.

EXAMPLE:

12,000 ..... ONE TWO THOUSAND

EXAMPLE:

12,500 ..... ONE TWO THOUSAND FIVE HUNDRED

At and above, 18,000 feet MSL (FL 180) state the words "flight level" followed by the separate digits of the flight level.

EXAMPLE:

19,000 .... FLIGHT LEVEL ONE NINER ZERO

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Directions

The three digits of bearing, course, heading or wind direction are always magnetic unless otherwise indicated. The word "true" must be added when it applies.

EXAMPLE:
(magnetic course) 005 ..... ZERO ZERO FIVE

EXAMPLE:
(true course) 050 ..... ZERO FIVE ZERO TRUE

EXAMPLE:
(magnetic bearing) 360 ..... THREE SIX ZERO

EXAMPLE:
(magnetic heading) 100 ..... ONE ZERO ZERO

EXAMPLE:
(wind direction) 220 ..... TWO TWO ZERO

Airspeed

The separate digits of a speed number are followed by the word "KNOTS."

EXAMPLES:
(SPEED) 250 ..... TWO FIVE ZERO KNOTS

(SPEED) 190 ..... ONE NINER ZERO KNOTS

FAA uses Coordinated Universal Time (UTC) for all operations. The term "Zulu" is used when ATC procedures require a reference to UTC.

EXAMPLE:
0920 ..... ZERO NINER TWO ZERO

To Convert from Standard Time to UTC

Eastern Standard Time .... Add 5 hours
Central Standard Time .... Add 6 hours
Mountain Standard Time .. Add 7 hours
Pacific Standard Time .... Add 8 hours
Alaska Standard Time .... Add 9 hours
Hawaii Standard Time ... Add 10 hours

NOTE—For Daylight Time subtract 1 hour.

The 24-hour clock system is used in radiotelephone transmissions. The hour is indicated by the first two figures and the minutes by the last two figures.

EXAMPLE:
0000 (midnight) ..... ZERO ZERO ZERO ZERO

EXAMPLE:
0920 ..... ZERO NINER TWO ZERO

Frequency Assignments

FSS's are allocated frequencies for difference functions: for example, 122.0 MHz is assigned as the En Route Flight Advisory Service frequency at selected FSS's. In addition, certain FSS's provide Airport Advisory Service on 123.6 MHz. Other FSS frequencies are listed in the Airport/Facility Directory. If you are in doubt as to what frequency to use, 122.2 MHz is assigned to the majority of FSSs as a common en route simplex frequency.

Certain VOR voice channels are being utilized for recorded broadcasts, i.e., ATIS, HIWAS, etc. These services and appropriate frequencies are listed in the Airport/Facility Directory. On VFR flights, pilots are urged to monitor these frequencies. When in contact with a control facility, notify the controller if you plan to leave the frequency to monitor these broadcasts.

Phonetic Pronunciation

The International Civil Aviation Organization (ICAO) phonetic alphabet is used by FAA personnel when communications conditions are such that the information cannot be readily received without their use. Pilots should learn to use the phonetic alphabet when identifying their aircraft during initial contact with air traffic control facilities.

ATC facilities may request pilots to use phonetic letter equivalents when aircraft with similar sounding identifications are receiving communications on the same frequency. Additionally, use the phonetic equivalents to spell out groups of letters or difficult words during adverse communications conditions.

The Phonetic Alphabet

A	Alfa	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliet	W	Whiskey
K	Kilo	X	X-ray
L	Lima	Y	Yankee
M	Mike	Z	Zebra

Note: Complete details on radio operations are given in the Airman's Information Manual (AIM), on sale at U.S. Government Printing Office bookstores.

THE GAB GREMLIN

Supposing you were listening on the tower frequency while positioning your aircraft for an approach to land and you overheard the following transmission:

"Sunburst tower, this is chromeplated stove pipe, triple nickel 8 ball, angels 8, 5 in the slot, got my boots on and laced, and I want to bounce and blow!"

The tower responds: "Roger, you got the nod, just hit the sod."

What would you make of it? Not much, probably, unless you happened to have some familiarity with old-time military pilots and controllers. In that case, you would understand that the pilot of an Air Force jet fighter, call sign #5558, was at 8,000 feet, five miles out on a straight-in final approach, and he was requesting approval for a touch and go landing.

Many military pilots and also some civilian airmen who have been taught to do everything by the numbers find it relaxing to develop a fanciful type of slang for their radio transmissions—just as long-haul truckers relieve the monotony with their special CB language. This was fine in aviation 30 years ago when traffic was usually pretty light. But in the busy skies of today there is no place for individual or imaginative wording in pilot/controller communications. When controllers are handling half a dozen or more aircraft, ranging from student trainers to air carrier jets, even the slightest misunderstanding could be tragic. The "A, B, P's" of modern aviation radio transmissions are Accuracy, Brevity, and Precision.

Along with adhering to standard radio phraseology, we have to keep an ear cocked for oral "gremlins." To me a gremlin is a small, invisible creature who can be blamed for any disruption in normal flight procedure when you don't actually know who or what else to hold responsible. Gremlins are a source of humor to pilots, but they can cause serious problems.

The particular communications gremlin I am familiar with I call "Homonym-Mouse." He is a descendant of "Ho-mony-mous"—a word the dictionary uses to mean words that sound alike but may have different or even contradictory meanings.

Homonym-Mouse and I go way back. I first ran into this furry little beast "thirty-some" years ago, shortly after I had earned a Limited Flight Instructor's (LFI) certificate from the Civil Aeronautics Authority (predecessor of FAA).

As a new LFI I thought I had a pretty fair understanding of the communication process when it came to transmitting an idea from my mind to the student's head. I would always explain the aerodynamics of an intended maneuver first, then demonstrate it, and then let the student have a try. It always worked—until the day my gremlin friend entered the picture.

On this occasion, I was demonstrating power-on stall recovery to a youthful student in primary training. I proclaimed with authority it was vitally important that a concentrated and coordinated effort be maintained to keep the ball in the center in order to prevent the left wing from "falling off." I demonstrated the power-on stall and recovery and then invited the youth at my side to do the same.

The student took the wheel in both hands, but after a bit I observed that the nose of the aircraft had not risen above the horizon. I also noticed that the knuckles of the student's hands were turning white, and that he was staring out the left side of the airplane. He appeared to be literally frozen stiff. Reviewing my previous remarks, I suddenly realized what had happened; a careless choice of words had allowed a gremlin to strike.

Flying is a potentially life-threatening experience for persons who are not accustomed to being off the ground. By proclaiming the possibility of the left wing *falling off*, I had multiplied this fear about ten-fold in the student by inviting him to dwell on the consequences of losing the left wing if he made the slightest mistake. In order to remove this notion, I had to demonstrate several times to the student what I had meant by the wing falling off—and how this situation could be dealt with appropriately—before he loosened up enough to try for himself.

After that I was more judicious with my language in instructing, but before long I encountered that gremlin once more. This time I was teaching touch-and-go landings to a student at a small, quiet airport. We went around in the pattern with the student handling the controls and my coaching as needed. He made a good approach and landed smoothly, if somewhat long. As the airplane settled on the runway, I promptly called for "Takeoff power!" Just as promptly the student pulled the throttle out.

Homonym-Mouse had struck again! I grabbed the wheel and by standing on the brakes managed to avert an over-run. I explained, in as calm a voice as I could manage, that in this airplane "takeoff" power meant full power, not chop the throttle or reduce power.

From this point on, I made a conscious effort to eradicate slang from instruction—to the point that I began to sound like a night school teacher instructing recent immigrants. But at least it kept that gremlin out of earshot for many years. In fact, I was beginning to think he had curled up and died somewhere until one murky night when I was instructing a pilot in a **SuperCub** (tandem seating) on instrument approaches. He was doing the flying and I was handling the radio as we both looked out for the runway lighting system. I saw them first and called out, "I've got it."

Okay, he said, and unbeknownest to me he relaxed and relinquished the controls (no one flying). The aircraft commenced a very irregular descent until I took over and managed a rough but safe landing. Fortunately I realized that the innocent-sounding word "it" was ambiguous enough to allow Homonym-Mouse to come out of hiding.

Since that time, I have been convinced that this type of gremlin dwells in every cockpit, waiting to pounce on any imprecise expression pilots may use between themselves or in talking to ATC. In the air, I avoid loose language like the plague.

Gary Koch

Editor's note: Mr. Koch, who managed an air taxi and flight instruction business in Colorado Springs, CO, before joining the Federal Aviation Administration as a safety inspector in 1969, currently directs FAA's National Accident Prevention Program from Washington, D.C.

GENERAL AVIATION'S "Most Valuable Players" of 1988

Jeffrey Hanson

Robert K. Love, Jr.

When Jeffrey Hanson of Eureka, CA graduated from high school in 1969 and received a West Point appointment he thought he was destined for a military career. But when he was unable to pass the vision examination he had to rethink his future, and decided on civilian flight instruction instead. Today, some 20 years later, and after some 7,000 hours of flight instruction given, he has received national recognition as the Outstanding Flight Instructor of the Year.

During this period he found time to earn a Bachelor of Science degree in physics from Humboldt State University and to teach aeronautics and meteorology at community colleges. As a teacher he was well aware of how important it is to have a distraction-free classroom, and how difficult it is for many new students to concentrate on receiving and applying instruction in a noisy environment.

Early in his instruction career he decided that a headset with a boom mike was an invaluable tool for stabilizing the cockpit environment. Not only did it reduce noise and free both hands for flying, it also permitted both occupants to converse in normal tones and avoid possible misunderstandings. Furthermore Mr. Hanson found that the fatigue he sometimes experienced after many consecutive hours of teaching in flight was appreciably reduced, as was the hazard of eventual hearing loss that is common to many high time pilots who do not protect their ears. For the student the improvement in learning time easily offset the price of the equipment.

Now residing in the San Francisco Bay area where he is an FAA designated pilot, flight and written test examiner, Mr. Hanson has applied for a position with FAA as a safety inspector in Flight Standards, where he hopes to work as an Accident Prevention Specialist. ■

Robert K. Love, Jr. is a man who does not like to leave well enough alone—at least, not when a little ingenuity can turn "well enough" into fail safe. As an aviation technician he is concerned not only about the safety of pilots but also about the kinds of hazards mechanics encounter on the job.

For example, unexpected engine starts have been a hazard in the shop for years. Most light aircraft ignition systems are inactivated by a single grounding wire when the switch is in the OFF position. If that ground becomes defective, any movement of the propeller during shop handling could fire up the engine and cause serious injuries to mechanics.

To remove this accident threat from the shop scene, Mr. Love created a simple harness of electric wires which could be externally clamped to the magneto and to the engine block as a ground, by means of alligator clamps. He added a flag saying, "Remove Before Flight." Simple, but effective.

When it comes to replacing the engine oil, Mr. Love is not in favor of pouring new wine into old bottles, as the saying goes. Routinely he begins by placing a placard in the cockpit, warning that there is "No Oil in the Engine." Then he carefully cuts up the old oil filter and examines it for abnormal amounts of metal or other particles. He believes that the filter screen can give you an important early warning about the status of piston rings that could prevent an in flight engine seize-up.

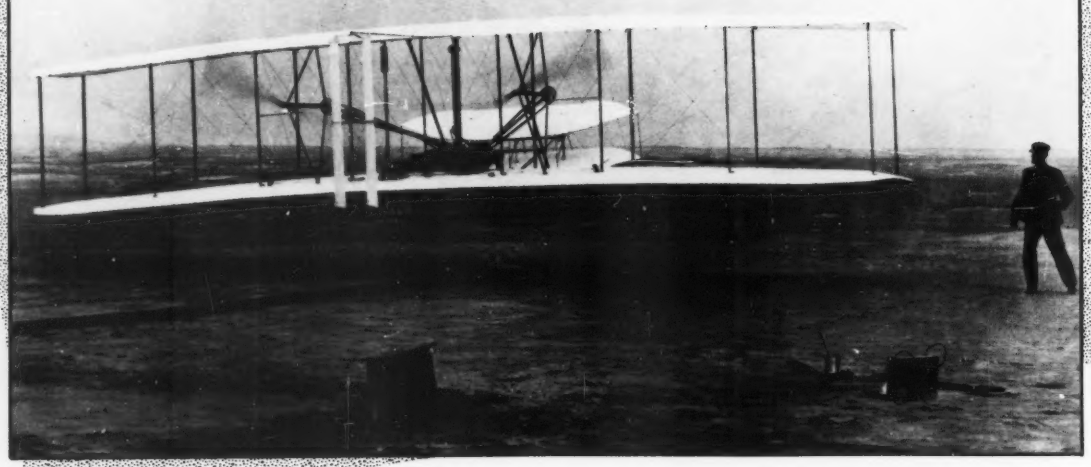
Even such apparently minor items as the slow tire leak sometimes encountered when tubes and tires mounted on "Cleveland" wheels catches his attention. Mounting tires on these wheels can be difficult, since it is important to bring the two halves of the wheel together without damaging the inner tube. Mr. Love designed a spacer for the wheel halves which allows them to be drawn together evenly without difficulty.

Recently Mr. Love's concern for making "well enough" better has led him to establish his own tool company for making the useful devices he creates available to the industry at large.

A native of west Texas who learned aircraft maintenance in the Air Force during three years of the Korean War, Mr. Love now works out of Clovis (NM) Municipal Airport. He has twice been given awards by the state for his many contributions to aircraft safety, and this year he is the National Outstanding Maintenance Technician of the Year.

Robert Love and Jeffrey Hanson received their official national recognition in November of 1988, after being flown to FAA Headquarters in Washington for the ceremony and a visit to the nation's capital. They also received upwards of $15,000 each in cash and material awards from the aviation industry. The National Business Aircraft Association hosted the competition this year—the 25th season of the Instructor and Mechanic awards. ■

The First Aviation Mechanic



He has been called the "unsung hero" of aviation, the absolutely indispensable person without whom the Wright brothers could not have made that first flight in 1903, and yet he is barely a footnote in history today.

His name is Charles Taylor, and he is the first aviation mechanic in powered flight, the man who built and maintained those first aircraft engines.

Born on a farm in Illinois, Charlie Taylor became a skilled machinist in the latter part of the last century. At the turn of the century he was a supervisor at the Dayton Electric Company in Ohio, and he had also struck up a friendship with those two young fellows who ran a bicycle shop in town, the brothers Wright. In 1901, the Wrights asked him to take over the running of their shop because they were now devoting most of their time to building gliders. Charlie's new employment at age 33 was to change the history of the world.

The Wrights had made successful glider experiments, and now they thought they could move on to powered flight. But of course they needed an engine. They wrote to a dozen automobile companies, asking them to produce an 8 horsepower engine weighing not more than 29 pounds per horsepower which they could use on a glider, but everyone turned them down. The Wrights then turned to Charlie and asked him to join them in creating the first powered aircraft.

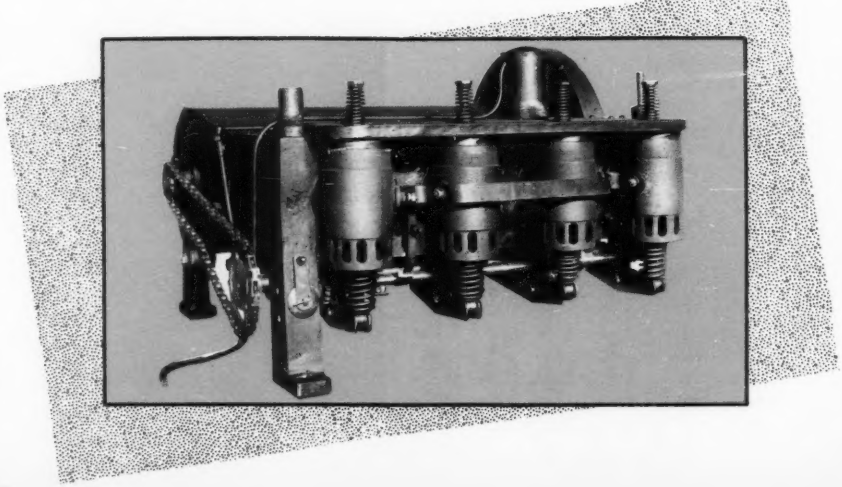
During six weeks in 1902 Charlie Taylor built that first engine for the *Wright Flyer*. Using basically only a lathe and a drill press, he machined the block in his own shop. He made the crankshaft from a slab of high-carbon tool steel, working it down to size on a lathe. The finished engine was a simplified version of a contemporary automobile engine with four water-cooled, horizontal cylinders. The fuel was injected directly into the cylinders by gravity from a tank fastened to a strut near the upper wing. There were no spark plugs, and the spark was created by opening and closing two contact points in each cylinder. The first successful aircraft engine built by Charlie was a four-cylinder piston engine which weighed 179 pounds, producing 12 hp. at 1,090 rpm.

This was the engine which was used at the historic flight at Kitty Hawk in 1903, Charlie's engine.

Charlie continued to build the other engines for the Wrights throughout the decade, and he maintained them as well, something which was of critical importance since the Wrights cracked up a number of those planes through the years. Building, maintaining, and repairing was Charlie's job on those first planes.

Orville Wright later said: "*The speed shown in the development of a suitable powerplant was due largely to the enthusiasm and efficient services of C.E. Taylor, who did all the machine work in our shop for the first as well as for the succeeding experimental machines.*"

Taylor accompanied Wilbur to Paris in



1907 to demonstrate the new plane, and Orville to Washington in 1908 to sell it to the military. In 1910, back in Ohio he made his first flight in a plane piloted by Orville.

In 1911, Charlie went to work for Cal Rodgers to prepare him for the first transcontinental flight in history. He followed Rodgers across the country as the pilot made the historic series of short flights in 49 days. Rodgers said of him that "*he was the greatest airplane mechanic in the country.*"

After Wilbur's untimely death in 1912, Taylor returned to Dayton where he worked for the Wright-Martin Company until 1920. He then moved to California, and things turned bad for Charlie Taylor. He opened a machine shop which failed, he lost his life savings in a real estate venture, and his wife died. Orville Wright, who was moving on to fame and fortune, lost contact with him.

In 1937, Henry Ford was reconstructing the old Wright bicycle shop in Dearborn, Michigan, and he had detectives track down Charlie Taylor, who was found working at North American Aviation in Los Angeles for 37¢ an hour beside men who did not realize that he had built the first aircraft engine.

Ford brought Charlie to Michigan to help him restore the exhibit, and he remained until 1941 when he again returned to California. During the war he worked 60 hours a week in a defense factory, but in 1945 he suffered a serious heart attack and was never able to work again. His plight finally came to the attention of Orville Wright who belatedly gave him a small annuity of $800 a year for life, the only money, besides his Social Security, Charlie would earn for the rest of his life.

In 1955, an enterprising newspaper reporter discovered the 87-year-old Taylor in a charity ward of a Los Angeles hospital, alone, broke, and destitute. The story broke in headlines across the country, reading KITTY HAWK ENGINE BUILDER DESTITUTE, and MAN WHO BUILT WRIGHTS' ENGINE IS CHARITY CASE. The Aircraft Industries Association immediately came to the aid of the aviation pioneer, moving him into a private sanitorium where he died a few months later.

In 1965, Charlie was inducted into the Aviation Hall of Fame at Dayton, Ohio, and the citation reads: "*To Charles Edward Taylor, for outstanding contributions to aviation by mechanical ability and skill in building the first successful engine, and by dedicated service in maintaining early airplanes in readiness for their historic flights.*"

For Charlie Taylor—aviation's first mechanic—the award was long overdue. ■

Editor's Note: "The First Aircraft Mechanic" was written for and published originally in PAMA News, *by Peter Rohrbach.*

Charlie Taylors Memoirs of Orville and Wilbur

My wife's people had lived in Dayton years before and had become acquainted with Bishop Wright. He even visited them after they moved to Nebraska where I met and married Mrs. Taylor. And her uncle owned the building the Wright brothers rented for their bicycle business. But I never heard of the Wrights until I moved to Dayton [in 1896] and met them in the course of some work they brought into my shop around 1898.

One of the brothers, I forget which, asked me would I like to go to work for them. There were the two of them in the shop and they said they needed another hand. They offered me $18 a week. That was pretty good money; it figured to 30 cents an hour.

So far as I can figure out. Will and Orv hired me to worry about their bicycle business so they could concentrate on their flying studies and experiments. I suppose the more of the routine work I shouldered, the faster they were able to to get on with their pet project—and I must have satisfied them for they didn't hire anyone else for eight years. If they had any idea in June of 1901 that someday they'd be making a gasoline internal-combustion engine for an airplane and would need some first rate machine work for it, they sure didn't say anything about it to me.

I think the hardest job Will and Orv had was with the propellers. I don't believe they ever were given enough credit for that development. They had read up on all that was published about boat propellers, but they couldn't find any formula for what they needed. So they had to develop their own, and this they did in the wind tunnel.

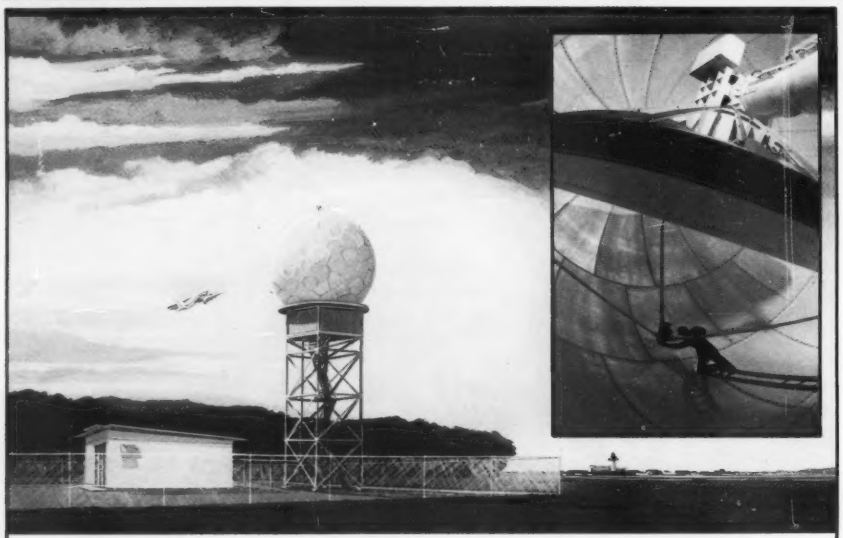
We never did assemble the whole [flying] machine at Dayton. There wasn't room enough in the shop. When the center section was assembled, it blocked the passage between the front and back rooms, and the boys had to go out the side door and around to the front to wait on the customers.

While the boys always worked hard and there never was any horseplay around the shop, they always seemed to find time to stop and talk with a customer or humor the neighborhood children who wandered in. Sometimes I think the kids were the only ones who really believed that Will and Orv would fly. They hadn't learned enough to say it couldn't be done.

Even when they got home [from Kitty Hawk] there was no special celebration in the shop. Of course they were pleased with the flight. But their first word with me, as I remember, was about the motor being damaged when the wind picked up the machine and turned it topsy-turvy after Wilbur had completed the fourth flight. They wanted a new one built right away. And they were concerned with making improvements in the controls. They were always thinking of the next thing to do; they didn't waste much time worrying about the past.

People have asked me if I knew why neither Wilbur nor Orville ever married, particularly since their older brothers Reuchlin and Lorin and their sister Katharine did. I'm sure I never asked them, but I remember that Orv used to say it was up to Will to marry first because he was the older of the two. And Will kept saying he didn't have time for a wife. But I think he was just woman-shy, about young women, at least. He would get awfully nervous when young women were around.

(continued on back cover)



HAZARDOUS WARNING. The Doppler weather radar system, similar to the one shown in the photo, is designed to warn of hazardous windshear conditions and microbursts. Unlike conventional radar, the Doppler system will actually measure the dangerous wind shifts within the storm that could endanger aircraft within the airport vicinity. It will at first be linked directly to a special display used by the controller, but plans are in the works for the information to be transmitted directly to a cockpit display while the aircraft is in flight. The first system is scheduled for delivery to Atlantic City in the fall of 1991 and will eventually be installed at 47 major airports.

OFFSHORE FLYING REQUIRES FLIGHT PLAN

In an effort to reduce the potential for midair and near midair collisions and deter drug smuggling, the Federal Aviation Administration (FAA) has taken regulatory actions aimed at cutting the flow of drugs into this country and reducing the threat of mid-air collisions over U.S. coastal waters.

The first of these actions was a rule requiring all operators of civil aircraft conducting operations into or out of the U.S. and into or through the United States Air Defense Identification Zones (ADIZ) to file a flight plan before entering ADIZ airspace. The pilot must also make periodic position reports.

Additionally, for civil aircraft operations in any ADIZ, if the aircraft is equipped with a transponder, the pilot must have this equipment turned on at all times. These requirements became effective on December 12, 1988.

The second FAA action is a notice of proposed rulemaking (NPRM) that would require all operators of civil aircraft conducting operations into or out of the U.S. into, within, or through an ADIZ to be equipped with a transponder and automatic altitude reporting equipment. The NPRM complements another recently-adopted FAA rule that requires this equipment at approximately 140 U.S. airports and in controlled airspace above 10,000 feet mean sea level. Comments on this NPRM are now being evaluated.

Prior to the emergence of aerial drug smuggling as a national problem, FAA rules required ADIZ flight plans and position reports only for those aircraft capable of flying at airspeeds of more than 180 knots, since slower aircraft were not considered to represent a military threat. The rules were amended in March 1982 to include *all* flights through the Florida ADIZ areas in order to improve identification of drug smugglers. The success of that effort subsequently prompted Customs to request full ADIZ implementation.

MODE C INTRUDER

FAA has installed equipment at all 20 domestic air route traffic control centers, for a new ATC program that will reduce the potential for conflict between IFR traffic and VFR aircraft equipped with functioning Mode C transponders.

The new "Mode C Intruder" program will automatically alert controllers when there is a potential conflict between IFR and VFR aircraft, so appropriate course adjustments can be made. This will help diminish the possibility of IFR/VFR midair collisions, which constitute the most frequent type of air traffic collision.

FAA plans to achieve nationwide coverage with this new program in all airspace above 5,000 feet in the first quarter of this year.

LATEST FAA PUBLICATIONS

EMERGENCY COPTER SERVICE

The responsibilities of helicopter operators in transporting persons for emergency medical services are discussed in detail in a new FAA advisory circular on this subject.

The circular provides a definition of terms used in the certification of Part 135 commercial operators (EMS/H), as well as recommendations for the safest possible procedures for this type of flying, which often takes place under adverse conditions and considerable time pressure. There is also a discussion of training and safety programs, and also equipment maintenance, storage and inspection.

Part 91 and public use operators will also find useful material in this publication, which is available without charge. Request a copy of Advisory Circular 135–14, "Emergency Medical Services/Helicopter (EMS/H)" from DOT, M–443.2, Washington, DC 20590.

SINGLE CLASS TCA'S

A "Noise Certification Handbook" (AC 36–4B), intended to help standardize turbo-jet compliance with noise regulations, has been published by FAA's Office of Environment and Energy. The pamphlet includes a discussion of agency policy in these matters. Copies of this advisory circular are available without charge from DOT, M–443.2, Washington, DC 20590.

JET NOISE LIMITS

FAA Administrator T. Allan McArtor has issued a final rule designed to improve the safety of operations in a Terminal Control Area (TCA). Significant provisions of the rule change include:

1) Classification: Effective January 12, 1989, all references to Group I, II, and III TCA's have been removed from the regulations. From now on there will be only a single designation known as a "TCA."

2) Pilot Qualifications: Effective January 12, 1989, the pilot in command of an aircraft operating in a TCA must hold at least a private pilot certificate; or, in the case of a student pilot, must have received the appropriate training and endorsements prescribed by FAR §61.95. Furthermore, authorized student pilot operations must be in accordance with procedures established by air traffic control. Additionally, student pilots are specifically prohibited from operating to or from certain TCA airports which are listed in the FAR.

3) Equipment Operations: Effective July 1, 1989, helicopter operations will no longer be exempted from certain equipment and operating requirements. The same requirements will apply to all aircraft operations within a TCA regardless of aircraft category.

• CFI's and the Medical

In the July/August 1981 issue of FAA GENERAL AVIATION NEWS a reader asked whether a CFI with only a third-class medical could give non-profit flight instruction (to friends and family); the editor's answer was affirmative. In the May/June 1988 issue of FAA AVIATION NEWS, you state in answer to a similar question, "Whether flight instruction is given for compensation or not has no bearing on the class of airman medical certificate required."

Is this a contradiction?

Newton W. Miller
Relands, CA

No. The FAA has determined that any certified flight instructor (CFI) who holds at least a current third class medical certificate may give flight instruction, for compensation or gratis, in any aircraft in which the CFI is qualified. At the same time the CFI may act as pilot-in-command (PIC) or as a required crewmember in any aircraft for which he or she is qualified.

CFI's without a current medical certificate are still authorized to give flight instruction, in an aircraft for which they are qualified, either for compensation or gratis, provided that they do not act as PIC or as a required crewmember.

• Double PIC Concept

Recently, I was reading a collection of Flight Forum reprints published in FAR 1988 by TAB AERO of Blue Ridge Summit PA. I would like to know if the interpretation as published in the Jan/Feb 1981 edition of FAA Aviation News, regarding the logging of PIC time by non-instrument rated pilots in IMC conditions is still valid. The article states that a private pilot or better, without an instrument rating, may log as PIC time the duration of a flight in which he was the sole manipulator of the controls, regardless of meteorological conditions, provided he is supervised by an appropriately rated pilot. I appreciate your cooperation in this matter.

Joseph Gencorelli
Lindenhurst, NJ

Our response to the January/February 1981 letter on PIC logging is correct, and still current.

Some pilots find the concept of pilot-in-command confusing, because it may be used in more than one concept. Under Part I of the FARs, the PIC is always the person who is responsible for the operation and safety of the aircraft in flight. As such, he or she must always be fully qualified for and current in the aircraft for the conditions of flight being carried out. This means, among other things, that if the flight is carried out in IMC or under an instrument flight plan, the PIC must be instrument-rated and current, as well as fully qualified for the aircraft in all other respects.

However, under FAR Part 61.51 a non-instrument-rated pilot (private or commercial pilot) may log as PIC that time during which he is sole manipulator of the controls of an aircraft for which he is rated. For clarity it would be advisable to log the time concurrently as PIC time and instruction-received time, if instruction was given by a CFI.

Our various responses on this subject over the past eight years are all correct and current, except for the response to the September/October 1982 Instrument Corner, which should be disregarded.

• Heading for Trouble

In the May/June 1988 issue on page 11, you had a good article on flight simulation by Bruce Landsberg titled, "Myths and Facts." The title photo has the airplane lined up on runway 16, but the wet compass shows a heading of 130° and the HSI show 260°! It looks like a lot of flap for takeoff. What gives?

R. Heath
Redwood City, CA

The photo used was taken from inside a simulator. The wet compass could still be swinging after the turn onto the runway. Or perhaps the flap setting and the incorrect HSI were introduced by the instructor to see if the pilot was alert. Our compliments on your sharp observations.

• LORAN as Visual Aid

Reference your reply to the letter on LORAN-C usage in the July/August issue, I would contend that any LORAN equipment—for airplane, boat or what have you—can be used in VFR en route procedures. Under VFR we are expected to navigate primarily by reference to the ground (or water), and any avionics device or other aid to navigation that increases our effectiveness may be used for that purpose.

Also, I think you are only partly correct in saying that LORAN has not been approved for instrument approaches. There are at least eight LORAN approved approach procedures published in the NOS S.I.A.P., for pilots with FAA-approved equipment.

Incidentally, you have a great publication!

Andrew Serrell
Berlin, MD

We agree that there is no regulation prohibiting the use of any navigational device to assist a pilot in VFR flight. However, if that device is attached to the airframe or draws its power from the aircraft's electrical system, the installation must be performed and approved for return to service by an FAA-approved repair station or airframe-rated mechanic qualified to install the device. (This is a clarification of the answer to question No. 1 in our article on LORAN-C in the March/April issue of FAA AVIATION NEWS.)

For IFR en route flight, the equipment as well as the installation must be FAA-approved. For en route IFR, LORAN with or without a data base may be used if both the equipment and the installation are FAA-approved. Approval includes inflight verification. If the LORAN has a database, it is the pilot's responsibility to see that it is up-to-date and functioning properly. Otherwise the LORAN may not be legally used for IFR navigation. Advisory Circular 20-121A applies to the installation and approval requirements for LORAN-C.

An IFR LORAN may be used to navigate to an initial approach fix, but not for the approach. Public LORAN instrument approaches are NOT approved and NO approach plates for such approaches have been published by NOS to date. Individuals who wish authorization from Flight Standards to make non-precision LORAN instrument approaches at specified airports must be accepted as participants in FAA's current LORAN "early implementation program," and must obtain any necessary approach diagrams on their own (the SIAP will be issued to the participant by flight standards.).

Thank you for your concern, and for the compliment.

FAA AVIATION NEWS welcomes comments from our readers. No anonymous letters will be used, but names will be withheld on request. Address: FAA AVIATION NEWS, AFS-20, Washington, D.C. 20591.

• The FAA Connection

I occasionally have a question that reference to the FARs does not answer. When this occurs, I try a Flight Standards Division as listed in a telephone directory. This has not worked. Since the FAA is so large, many of our readers must face this same problem. Could you publish a "mini directory" of FAA addresses to be used for various types of questions.

Fred Eggert
Solon, IA

If you periodically need to contact FAA, you would do well to buy an FAA Directory, which not only gives the names, telephone numbers and addresses you might need but also has answers to many questions pilots ask. It is sold by the Superintendent of Documents, U.S. GPO, Washington, D.C. 20402 (202-783-3238). Government Printing Office bookstores, located in the larger cities, can also serve you.

To verify the current issue's GPO stock number and price, call FAA, AMS-420, telephone number 202-267-9938. (April 1988, stock number SN 050-007-0794-5, is currently available at a cost of $9.50.)

Other means of locating an FAA Flight Standards District Office or General Aviation District Office include:

- Metropolitan telephone books (under U.S. Government, Department of Transportation, FAA.) A Flight Standards Office will be found in all but half a dozen of the least populated states.
- Any FAA facility (Center, FSS, etc.)
- Any airport management.

INSTRUMENT CORNER

• Unqualified ILS Approach

I am VFR above a broken layer of clouds. At my destination airport I notify Approach Control that I am VFR. They offer me an ILS approach and I accept. I am assigned a beacon code, issued vectors, and then cleared for the approach. I am not instructed to "maintain VFR." I do not mention a change to IFR and neither does ATC.

Under these conditions can I depart from VFR cloud separation requirements? Do the ATC instructions imply that I can proceed as if I were IFR?

Name Withheld

The transmissions you describe from ATC would be appropriate only for an IFR qualified and equipped pilot. Your acceptance of an ILS approach signifies that you are so qualified and equipped. If this is not true, you should so inform the controller immediately. In that case some other VFR or emergency procedure will be advised.

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Famous Flyers

(continued from p. 13)

I don't recall that Orville was that shy, but after Wilbur died I guess he just didn't feel like getting married. I think both the boys were mentally flying all the time and simply didn't think about girls.

Both boys had tempers, but no matter how angry they ever got, I never heard them use a profane word. I never swore, myself, and to this day I can't think of a time I ever let go with anything stronger than heckety-hoo. The boys were working out a lot of theory in those days, and occasionally they would get into terrific arguments. They'd shout at each other something terrible. I don't think they really got mad, but they sure got awfully hot.

It was Orville who gave me my first flight. He first offered me a hop in 1908 at Fort Myer, VA, when we were demonstrating the Wright airplane for the first Army contract (which we later won). I was in the passenger's seat and we were preparing to take off when a high-ranking officer asked Orville if he would mind taking along an Army observer instead. Naturally I got out and Lt. Thomas Selfridge took my place. The machine crashed shortly after takeoff; Lt. Selfridge was killed and Orville was seriously injured.

I always wanted to learn to fly, but I never did. The Wrights refused to teach me and tried to discourage the idea. They said they needed me in the shop and to service their machines, and if I learned to fly I'd be gadding about the country and maybe become an exhibition pilot, and then they'd never see me again.

In 1916 we took the Kitty Hawk plane out of storage and fixed it up for its first exhibition, at the Massachusetts Institute of Technology in Cambridge, MA. If it hadn't been for Roy Knabenshue [the Wright's exhibition manager], there might not have been the historic relic to exhibit there or in Washington, now. Roy tells how he approached Wilbur early in 1912 and asked him what he was going to do with the Kitty Hawk and Wilbur told him, "Oh, I guess we'll burn it; it's worthless." Roy argued it was historic and finally talked him out of destroying the plane.

Right after V-J Day, in 1945, I had a heart attack and had to stop working. I was seventy-seven then and had worked for 65 years.

There isn't much to do now. My hearing isn't as good and lately my eyes have begun to bother me. My family is scattered and I don't get to see much of them. I never kept in touch with the old aviation crowd—except Orville—and never went or was invited to any of the big celebrations they would hold every now and then in honor of the Wright brothers and the advancement of aviation. I guess people didn't know where to find me.

In the last note I got from him [Orville], shortly before he died, he wrote:

"I hope you are well and enjoying life, but that's hard to imagine when you haven't much work to do." "Orv."

He knew me pretty well. ■

Editor's Note: "Charlie Taylor's Memories of the Wright Brothers," derived from a Collier Weekly issued in 1948, was provided by Bill Wanamaker.